



## AQA AS Maths Data 1 Section test solutions

5. Molly wants to collect data about the lengths of words in books for young children. She selects three books from her 4 year-old brother's collection and for each book she writes down the third word in every sentence. What type of sampling has Molly used?
- (a) Opportunity sampling
  - (b) Cluster sampling
  - (c) Stratified sampling
  - (d) Quota sampling
  - (e) Self-selected sampling
  - (f) Simple random sampling
6. Pedro wants to collect data about voting intentions in his local constituency. Which of the following methods would give Pedro a simple random sample?
- (a) select at random from the telephone directory
  - (b) select at random from the electoral register
  - (c) select at random from a complete list of addresses
7. A telephone company wants to get feedback about their service from customers who have their landline and broadband package. Which of the following methods would give a representative sample?
- (a) Telephoning a randomly chosen set of customers between 10 am and 12 noon on a weekday
  - (b) Telephoning a randomly chosen set of customers between 7 pm and 9 pm on a weekday
  - (c) Sending an email to a randomly chosen set of customers asking them to respond to an online survey
  - (d) None of the above

The questions below are about the large data set.

8. For the 2015 Living Costs and Food Survey, a total of 11,484 addresses were selected in Great Britain, of which 10,349 were eligible households (i.e. were not empty properties or business addresses). In Great Britain 4,760 households co-operated fully in the survey.
- What was the response rate for the 2015 survey? Give your answer as a percentage to the nearest whole number.
9. Which of the following statements is true?
- (a) The households which co-operated fully in the survey will be more representative of the population than the original sample chosen
  - (b) The households which co-operated fully in the survey will be equally representative of the population as the original sample chosen
  - (c) The households which co-operated fully in the survey could be less representative of the population than the original sample chosen

## AQA AS Maths Data 1 Section test solutions

10. Survey participants record their food and drink purchases in a two week diary. They are able to attach till receipts or to write in diary entries to cover amount spent and quantity purchased for each individual item. Which of the following might be common problems in using the data gathered in this way?
- (a) Participants may forget to record some of their purchases
  - (b) The purchases for these two weeks may not be representative of the household's usual purchases
  - (c) Some households may have more than one person in them so they buy more

# AQA AS Maths Data 1 Section test solutions

## Section test solutions

1. Only (ii) is a simple random sample.
2. Gita has used stratified sampling.
3. Jamie has used self-selected sampling
4. Jamie's sample is likely to be biased because his Facebook friends are not likely to be representative of all Facebook users.  
Gita's sample is not likely to be biased.
5. Molly has used cluster sampling.
6. Only 'Select at random from the electoral register' would give a simple random sample.  
Selecting from the telephone directory would not as this does not give the whole population.  
Selecting from a complete list of addresses would not as more than one person will live at some of the addresses.
7. None of these. Telephoning between 10 am and 12 am on a weekday would exclude most working people. Telephoning between 7 pm and 9 pm on a weekday would still exclude many people such as those who do shift work.  
Sending an email would only result in responses from those who chose to do so.
8.  $\frac{4760}{10349} \times 100 = 45.99...$   
The response rate was 46%
9. Yes, the sample is likely to be biased because those who chose to respond are not likely to be representative of the original sample chosen.
10. Common problems would be (a) participants forgetting to record some of their purchases and (b) the purchases for those two weeks may not be typical.  
It does not matter that there are different numbers of people living in each household, because figures are given per person.